

(FILE 'HOME' ENTERED AT 11:56:19 ON 12 NOV 2004)

FILE 'MEDLINE, CAPLUS, BIOSIS, AGRICOLA' ENTERED AT 12:14:40 ON 12 NOV
2004

L1	21009 S GLUCOSE (2N) OXIDASE
L2	183 S L1 AND (PEROXIDE (10N) (INACTIV? OR DEGRAD? OR STAB?))
L3	26 S L2 AND (SENSOR OR MUTA?)
L4	21 DUP REM L3 (5 DUPLICATES REMOVED)

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
1	BRS	L1	11796	glucose near2 oxidase	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:44	
2	BRS	L2	2879	peroxide near10 (resistance or resistant)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:44	
3	BRS	L3	67	11 and 12	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:47	
4	BRS	L4	4422	11 and peroxide	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:47	

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
5	BRS	L5	2223	14 and stability	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:47	
6	BRS	L6	937	15 and (degrade or degradation)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:48	
7	BRS	L7	14	11 near10 (stability or degrade or degradation) near10 (peroxide)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:51	
8	BRS	L8	1519	11 near10 peroxide	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:52	

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
9	BRS	L9	3	18 near10 (degrade)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:52	
10	BRS	L10	10	18 near10 (sensitive)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:54	
11	BRS	L11	290	18 and (degradation)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:54	
12	BRS	L12	1	18 near10 (degradation)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 11:55	

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
13	BRS	L13	10	18 near10 (stability)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 12:06	
14	BRS	L14	19	11 near10 (mutant)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 12:06	
15	BRS	L15	12	114 and (peroxide or h2o2)	US- PGPUB ; USPAT ; EPO; JPO; DERWE NT; IBM_T DB	2004/11/1 2 12:06	

L4 ANSWER 10 OF 21 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:860319 CAPLUS

DN 134:189999

TI In vitro and in vivo degradation of **glucose oxidase**
enzyme used for an implantable glucose biosensor

AU Valdes, T. I.; Moussy, F.

CS Center for Biomaterials & Surgical Research Center, University of
Connecticut Health Center, Farmington, CT, USA

SO Diabetes Technology & Therapeutics (2000), 2(3), 367-376
CODEN: DTTHFH; ISSN: 1520-9156

PB Mary Ann Liebert, Inc.

DT Journal

LA English

AB The degradation of the **glucose oxidase** (GOD) enzyme,
commonly used in the construction of glucose **sensors** has been of
concern for scientists for decades. Many researchers have found that GOD
deactivates over time, mostly due to H₂O₂ oxidation. This decay can lead to
the eventual failure of the **sensor**. However, these findings are
controversial, because other researchers did not find this degradation. The
goal of this study was twofold. The first goal was to evaluate the in
vitro and in vivo stability of two com. available GOD enzymes and the
second goal was to evaluate Nafion as a protective coating of GOD.
Crosslinked GOD samples were sandwiched between two 10- μ m pore
polycarbonate membranes (Nafion coated or uncoated) and placed in custom
designed Lexan chambers. Chambers were then exposed to a total of five
different environments: Dulbecco's Modified Eagle Medium (DMEM) or
phosphate buffered saline (PBS) with and without a 5.6-mM glucose
concentration,
as well as the s.c. in vivo environment of 12 rats. After a period of up
to 4 wk, chambers were retrieved, opened, and tested for enzyme activity
using a three-electrode system. Enzyme activity showed only a slight
decrease when exposed to DMEM and PBS without glucose. A more dramatic
decrease in activity was observed in enzymes exposed to PBS and DMEM with 5.6
mM glucose. The in vivo environment also caused a significant decrease in
enzyme activity, but the decrease was lower than for the in vitro
environment with glucose conditions. The presence of glucose in vitro and
in vivo led to the production of H₂O₂, suggesting this to be the main agent
responsible for enzyme degradation. The use of a Nafion coating did not
provide any addnl. protection.